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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/613,162	07/10/2000	Thomas Carl Mesing	13DV12817	9214

31450 7590 05/22/2003

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EXAMINER

MUSSER, BARBARA J

ART UNIT	PAPER NUMBER
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1733

DATE MAILED: 05/22/2003

9

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/613,162

Applicant(s)

MESING ET AL.

Examiner

Barbara J. Musser

Art Unit

1733

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 March 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) 13-30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5 and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wiley in view of Alston et al., Livesay et al.(U.S. Patent 5,837,185) and the admitted prior art.

Wiley discloses forming tube clamps by compression molding fiber-reinforced polymer in the shape of a tube clamp and the removing the shaped material from the mold.(Col. 3, ll. 44-57) While the reference discloses polyamide, a thermoplastic, the material listed, PMR-15, is a mixture of polyimide and carbon fibers as shown by Alston et al.(Col. 1, ll. 33-36) Clearly the use of polyamide rather than polyimide is a spelling mistake in Wiley. Thus the material used, PMR-15, is a thermosetting material, i.e. is capable of curing. One in the art would appreciate that the material was cured as that is how thermosetting materials are intended to be used.

Wiley is silent as to whether one or more layers of material are used to form the tube clamp. However, using one or more sheets of fibers to form a composite is well-known per se in the composite molding arts as shown for example by Livesay et al. which discloses one or more fiber sheets can be laid-up in a mold to form a structure(Col. 4, ll. 12-17) and by the admitted prior art which discloses forming a tube

clamp from multiple layers of material.(Pg. 2-3) It would have been obvious to one of ordinary skill in the art at the time the invention was made to use multiple fiber layers as it is known in general in the molding arts to use one or more layers of fibers to form a product as shown for example by Livesay(Col. 4, ll. 12-17) particularly in view of the admitted prior art which discloses it is known to make tube clamps from multiple layers of material.(Pg. 2-3)

Regarding claims 2 and 3, while Wiley discloses randomly oriented fiber layers, this is clearly only exemplary and not integral to the method of clamp formation. Livesay et al. discloses the fiber layers can be unidirectional, woven fabric or felt(randomly oriented fiber layers).(Col. 4, ll. 12-17) It would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the fiber layers of Wiley with unidirectional or woven fabric layers as Livesay et al. indicates these are well-known alternatives in the art.(Col. 4, ll. 12-17)

Regarding claim 4, Wiley discloses randomly oriented fiber layers.(Col. 3, ll. 49-50)

Regarding claim 5, the sheet is formed from graphite fiber with polyimide resin.(Wiley, Col. 3, ll. 49; Alston et al., Col. 1, ll. 33-36)

Regarding claims 10 and 11, Wiley discloses the clamp is compression molded.(Col. 3, ll. 50-51) but does not disclose the exact type of apparatus used. Livesay et al. discloses products can be formed by laying up dry fiber mats, impregnating them with resin, and autoclaving them.(Col. 1, ll. 29-39) It would have been obvious to one of ordinary skill in the art at the time the invention was made to lay-

up dry fiber layers, impregnate them with resin, and autoclave them, since Livesay et al. discloses this method forms structures with high strength-to-weight ratios(Col. 1, ll. 16-20) as would be required for a clamp.

Regarding claim 12, Wiley discloses the process to make a clamp. One in the art would understand that a clamp would have two halves, both made via the same molding technique.

3. Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wiley, Alston et al., and Livesay et al. as applied to claim 6 above, and further in view of the admitted prior art.

Wiley discloses clamp with the same thickness throughout. The admitted prior art discloses a clamp with a different thickness in different locations.(Figure 1) One in the art would appreciate the method of Wiley, Alston et al., and Livesay et al. could be used to form other types of clamps such as that of the admitted prior art since they are both clamps used in the airline industry and therefore have the same type of requirements. When forming clamps such as that of the admitted prior art, one in the art would appreciate that a filler would be needed between the top and bottom of the clamp as the clamp is not the same thickness throughout and fiber plies are. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use some type of filler such as fiber plies cut to shape since this would fill in the space between the top and bottom of the clamp known in the admitted prior art while using the same types of materials with the same strengths.

Response to Arguments

4. Applicant's arguments filed 3/3/03 have been fully considered but they are not persuasive.

Regarding applicant's argument that Wiley does not disclose a reason to have multiple fiber plies, Livesay et al. discloses it is known in general in the molding arts to use one or more fiber plies when forming a composite structure.

Regarding applicant's argument that the invention includes laying the sheets so that the fibers are parallel to the mold surface, the claims do not require such. Additionally, when unidirectional plies are used, they would be applied to the mold surface as individual layers and thus would have all the fibers parallel to the mold surface.

5. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., layering the sheets so that the fibers do not break the surface of the clamp and are parallel) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Regarding applicant's argument that there are an infinite number of ways to stack layers in a mold, the obvious and conventional way to stack layers is on top of each other. Applicant has not claimed a specific stacking or orientation of the fibers.

Regarding applicant's argument that Wiley does not disclose sheets with a random fiber orientation, Wiley states as applicant indicates, that the composite is made

of "graphite fiber with a random orientation."(Col. 3, ll. 48-50) Therefore the graphite fibers are randomly oriented. Applicant does not require a continuous fiber mat with resin impregnated in it, but rather fibers embedded in a curable matrix. Applicant does not require strength in any specific direction, and claim 4 clearly indicates that randomly oriented fibers which do not have a preferred directional strength can be used.

Regarding applicant's argument that Wiley discloses injecting the resin into the fibers, the reference does not disclose such. It used a fiber reinforced composite. Please state the column and line number showing how this is formed. Additionally, applicant claims such in claim 11, i.e. laying up dry fiber sheets and impregnating them with resin.

Regarding applicant's argument that claim 1 lays up the entire product in one mold, the claims does not require forming two halves in one mold and cutting them.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Barbara J. Musser whose telephone number is (703)-305-1352. The examiner can normally be reached on Monday-Thursday; alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Ball can be reached on 703-308-2058. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



BJM

May 21, 2003



Michael W. Ball
Supervisory Patent Examiner
Technology Center 1700